

Remarks

Claims 7-12, 17-21, 23 and 25 are pending in this application, Claims 1-6, 13-16, 22 and 24 having been previously withdrawn in response to an Election of Species Requirement. In this Amendment, a minor typographical error in the Specification is corrected and Claims 7, 8, 17, 21, 23 and 25 are amended to more particularly point out and distinctly claim the invention.

Claim Objections

The claim status identifier for Claims 1-6, 13-16, 22 and 24 has been corrected to read “withdrawn” as requested by the Examiner in the April 17, 2008 Office Action.

Claim Rejections Under 35 U.S.C. § 101

In the Office Action, the Examiner objected to Claim 8 on the basis that this claim is directed to non-statutory subject matter. Although Applicants disagree that Claim 8 claims a part of the human body in any way, Applicants have amended Claim 8 to specify that the “cradle” is “**adapted to be** coupled around at least part of said portion of the body of said patient” (emphasis added). This amendment should eliminate any concern that Claim 8 is attempting to claim a part of a human body.

Claim Rejections Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected Claims 7, 10, 17, 20, 21, 23 and 25 as unpatentable as obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 5,038,785 (“the ‘785 Patent”). The Examiner also rejected Claims 8, 11 and 18 as unpatentable as obvious under 35 U.S.C. § 103(a) over the ‘785 Patent in view of U.S. Patent No. 6,148,229 (“the ‘229 Patent”). In addition, the Examiner rejected dependent Claims 9 and

19 as unpatentable as obvious under 35 U.S.C. § 103 over the ‘785 Patent and the ‘229 Patent in view of U.S. Patent No. 5,327,888 (“the ‘888 Patent”). Finally, the Examiner rejected dependent Claim 12 as unpatentable as obvious under 35 U.S.C. § 103 over the ‘785 Patent in view of U.S. Patent No. 5,193,108 (“the ‘108 Patent”).

After entry of this Amendment, each of the pending independent claims currently being examined (i.e., Claim 7, 17, 21 and 25) requires that a gating signal be generated representative of movement of an exterior portion of a patient’s body while that patient is positioned within a magnetic field and that this signal be generated by electromagnetic induction (i.e., by movement of a loop of wire, such as an EGG lead, within a magnetic field). As discussed below, none of the cited references discloses the generation of a gating signal representative of motion of an exterior portion of a patient’s body, when the patient is positioned within a magnetic field, where this signal is produced by electromagnetic induction.

The ‘785 Patent discloses a system (Figs. 1 and 2) which detects an electrocardiogram signal using EKG electrodes 30, and a respiration signal, using an air-filled elastomeric belt 32 connected to a pressure sensor 60 (the reference designation for the pressure sensor is erroneously identified as 58 at Col. 6, line 2 of the specification) to measure changes in air pressure caused by a patient’s breathing. The ‘785 Patent does not disclose that a gating signal representative of motion of the body is generated by electromagnetic induction.

The ‘229 Patent, which shares a common inventor with the instant application, discloses a system and method for eliminating motion artifacts from the EKG signal during an MRI examination. Specifically, the system disclosed in the ‘229 Patent modulates the magnetic field and then generates a signal which is used to eliminate the motion artifact from the EKG signal to ensure that an accurate electrocardiogram signal is

generated after processing of the measured signals. In contradistinction, the present invention produces a gating signal representative of the motion of the patient's body measured by electromagnetic induction during the MRI examination. (*See, e.g.*, Abstract; Col. 5, line 7 - Col. 6, line 29). Like the '233 Patent, the '229 Patent uses the EKG leads only to provide an electrocardiogram signal, no gating signal as claimed is contemplated and none is provided in the apparatus disclosed in the '229 Patent. Also, the '229 Patent does not disclose the claimed "cradle" of Claims 8 and 18 which is coupled around part of the body, as alleged by the Examiner. Instead, the primary field coils 70 pointed to by the Examiner are coils which are added to a conventional MRI machine in the system disclosed in the '229 Patent to vary the magnetic field during an MRI examination in a way which eliminates motion artifacts in the electrocardiogram measurement.

Furthermore, the '888 Patent and the '108 Patent likewise do not disclose that the motion of a body (or portion of a body) be measured by electromagnetic induction. In particular, the cited '888 Patent is addressed to a precordial electrode strip which includes a group of electrodes and which is used to position the group of ECG electrodes on the torso of a patient (instead of having to separately position each of the ECG electrodes within the group). The '888 Patent does not disclose that any of the ECG electrodes and the related leads are used to measure motion of an exterior portion of the body of the patient or for the dual purpose of generating an ECG signal for display and a gating signal representative of body motion. The cited '108 Patent is addressed to a telecommunications test instrument, and does not include any disclosure or teaching related to a device which generates an electrocardiogram signal or a signal representative of body motion.

Since none of the cited prior art, alone or in any combination thereof, discloses an apparatus or method which generates a gating signal representative of the motion of an exterior portion of the body of a patient by use of electromagnetic induction,

none of the cited prior art, alone or in any combination thereof, renders obvious any of Claims 7-12, 17-21, 23 and 25. As a result, Applicants respectively request that the Examiner withdraw the rejections of Claims 7-12, 17-21 and 23.

Furthermore, since Applicants assert that linking Claim 21 is patentable, Applicants request consideration of non-elected Claims 1-6, 13-16, 22 and 24.

Conclusions

For all the reasons discussed above, Applicants respectfully submit that the present application is in condition for allowance, and request the allowance of Claims 7-12, 17-21, 23 and 25. No fees are deemed necessary for the filing of this Amendment. However, if any additional fees are required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 01-1785.

Respectfully submitted,

AMSTER, ROTHSTEIN & EBENSTEIN LLP
90 Park Avenue
Attorneys for Applicants
New York, New York 10016
(212) 336-8000

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By: /Michael J. Berger/
Michael J. Berger
Registration No. 25,829